USEPA's Freshwater Numeric Nutrient Criteria

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SFWMD Governing Board
and WRAC Meeting
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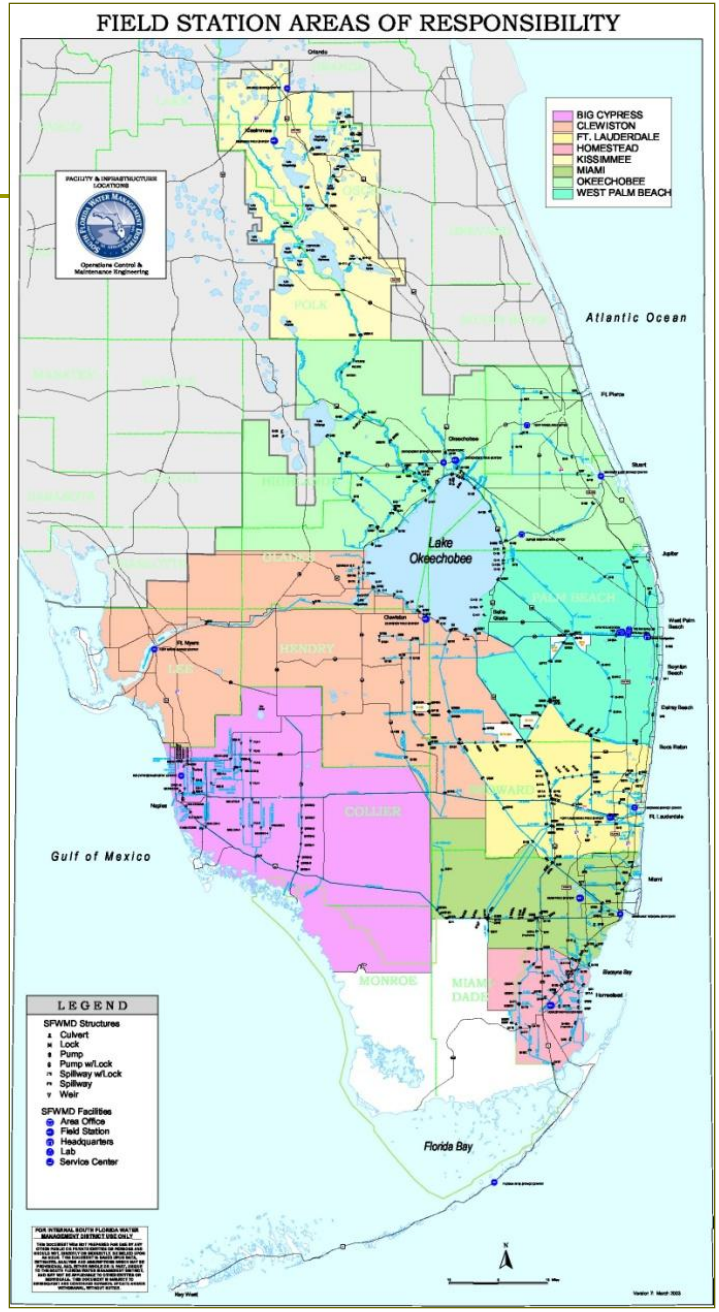
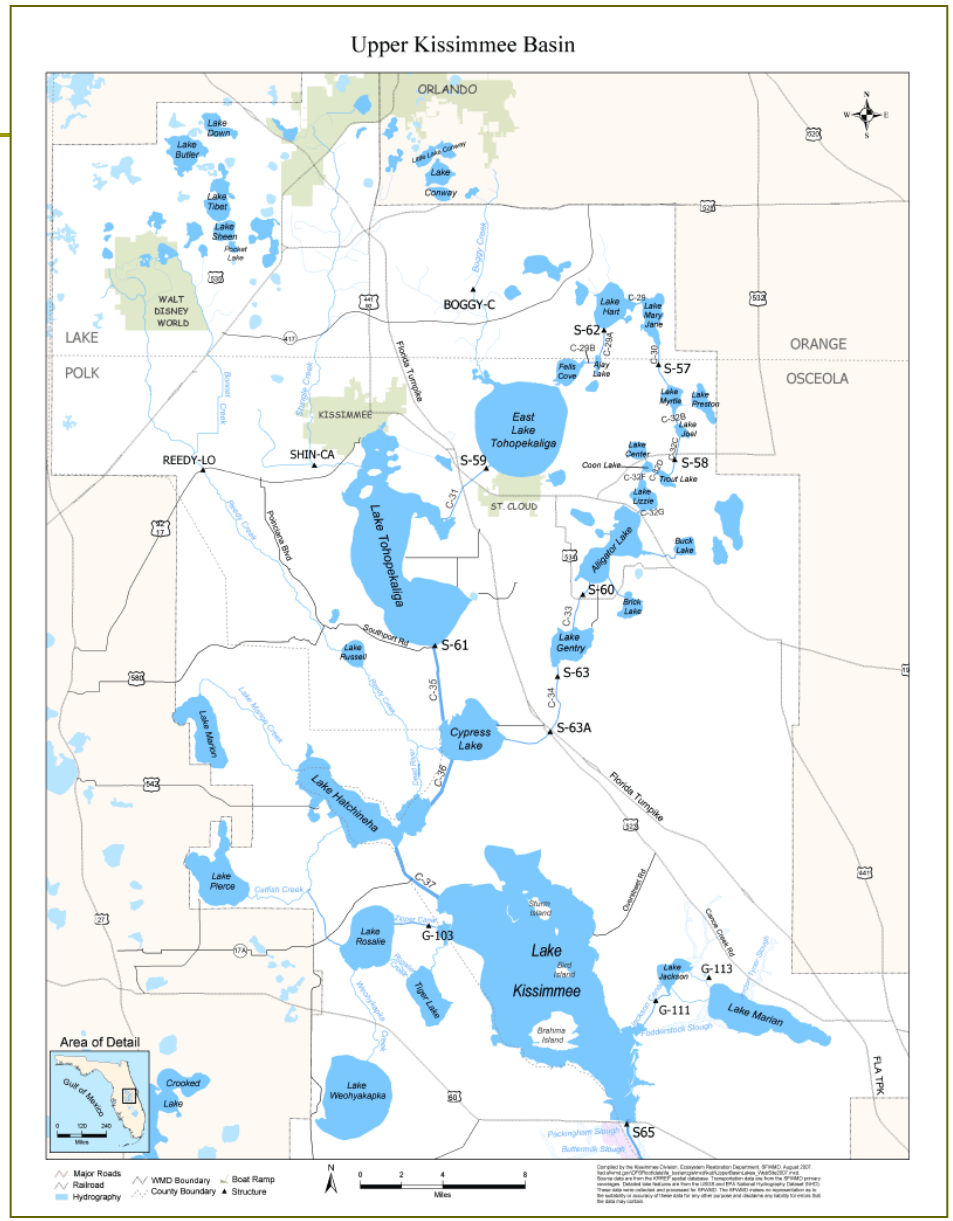


USEPA Freshwater Numeric Nutrient Criteria Schedule

- January 15th draft proposed rule released
- USEPA public meetings:
  - February 16th in Tallahassee
  - February 17th in Orlando
  - February 18th in West Palm Beach
- March 29th written comments deadline
- October 2010 final rule deadline

Lakes

- Primary District areas: Lake Okeechobee and northern watersheds
- Nitrogen and phosphorus criteria based on relationships to chlorophyll a criterion
- 3 different sets of criteria based on 3 lake types
  - Color
  - Clear, alkaline
  - Clear, acidic



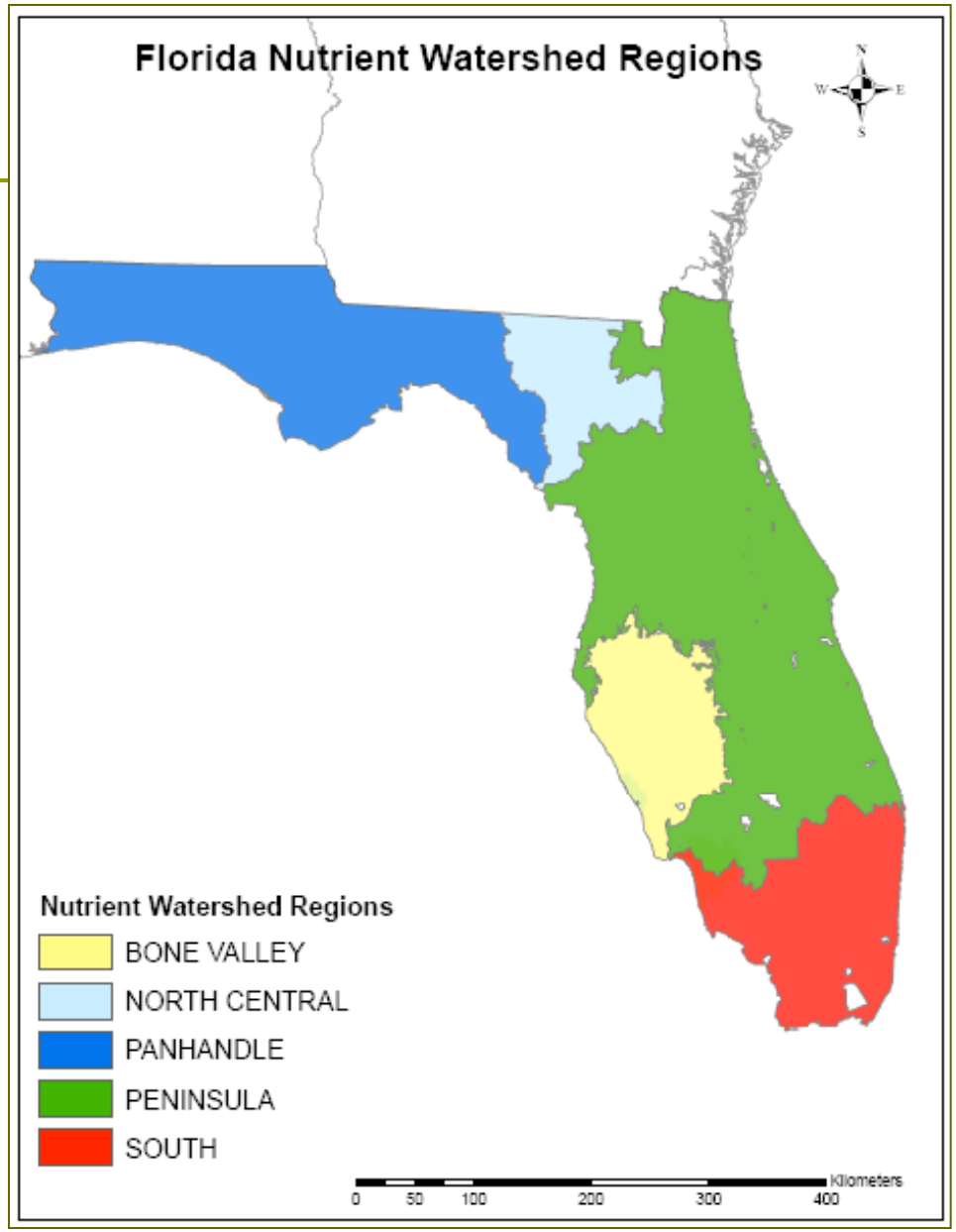
Numeric Nutrient Criteria: Color Lakes

Total Phosphorus = 50 parts per billion (ppb)*
Total Nitrogen = 1.23 parts per million (ppm)*
Chlorophyll a = 20 ppb

* Modified criteria are within rule and allow for higher TP and TN levels as long as chlorophyll a criterion met

Rivers and Streams

- Reference approach used in Nutrient Watershed Regions
- Nutrient (TN/TP) data compiled from river/streams with ‘healthy’ biology
- 75th percentile of TP and TN data sets criteria for each region
- No chlorophyll a criterion



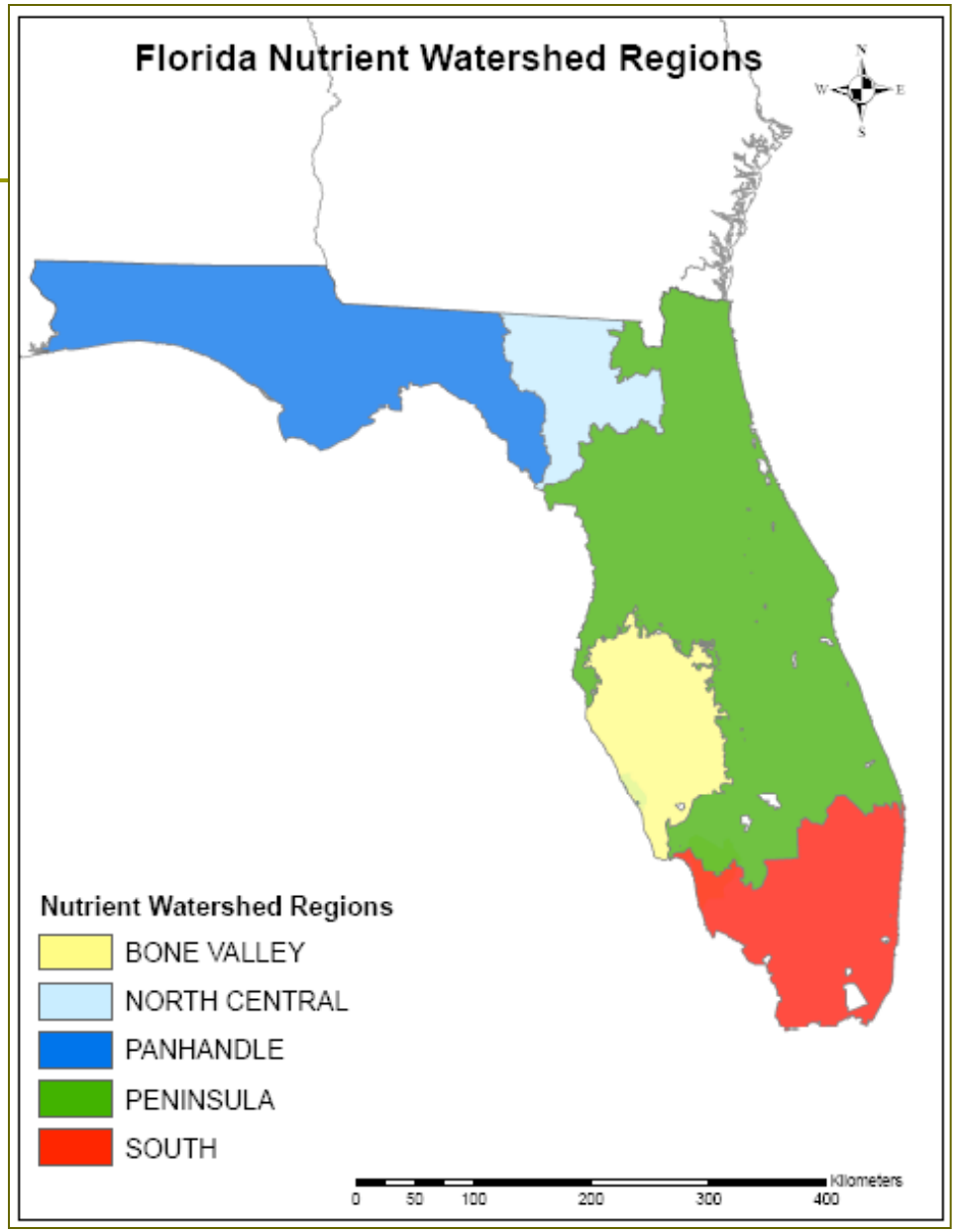
Numeric Nutrient Criteria for Rivers and Streams in Peninsula Region

Total Phosphorus = 107 parts per billion (ppb)*
Total Nitrogen = 1.205 parts per million (ppm)*

* An equation that evaluates downstream protection of lakes could lower TP and/or TN criteria

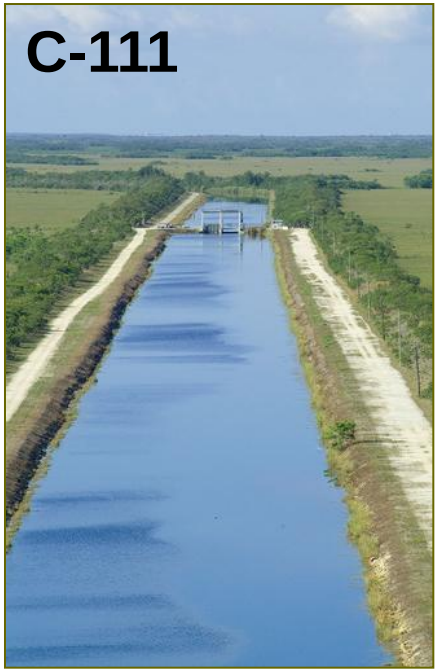
South Florida Canals

- USEPA computed criteria from subset of canals not on impaired waters lists
- Created an 'inference model' to perform an reference approach using 75th percentile
- Utilized chlorophyll a similar to lakes to protect canal designated uses
- Covers all canal types (Class I – III) within region



Numeric Nutrient Criteria for South Florida Canals

Total Phosphorus = 42 parts per billion (ppb)*
Total Nitrogen = 1.6 parts per million (ppm)
Chlorophyll a = 4 ppb



*TP criterion = 10 ppb for canals within Everglades Protection Area

Other Key Items in Rule

- Total Maximum Daily Loads (e.g., Lake Okeechobee and its tributaries) and Site Specific Alternative Criteria
- Restoration Water Quality Standards (WQS) Provision appears to be similar to FDEP's Basin Management Action Plan concept
- Other areas of state have downstream protective total nitrogen values for estuaries (Charlotte Harbor is our only one)

District Staff Actions

- Review Teams are evaluating criteria documents and appendices
- Potential effects of rule on District's operations and projects
- Participating in USEPA public meetings and provide written comments
- Canal Science Inventory

- Next up Dr. Garth Redfield and the Canal Science Inventory Update

Lakes Criteria: Generalized overview

A	B	C	D
Long Term Average Lake	Chlorophyll *a* (µg/L)	Baseline Criteria	
Color and **Alkalinity**		**TP** (mg/L)	**TN** (mg/L)
Colored Lakes > 40 PCU	20	0.050	1.23
Clear Lakes, Alkaline ≤ 40 PCU [d] and > 50 mg/L CaCO3 [e]	20	0.030	1.00
Clear Lakes, Acidic ≤ 40 PCU [d] and ≤ 50 mg/L CaCO3 [e]	6	0.010	0.500

Note: Modifying provisions are also included in the table that allow higher TN and TP criteria than baseline if the chlorophyll *a* criteria are being met

Lakes Criteria

A	B	C	D	E	F
Long Term Average Lake	Chlorophyll *a* [f] (µg/L) [a]	Baseline Criteria [b]		Modified Criteria (within these bounds) c	
Color and Alkalinity		TP (mg/L) [a]	TN (mg/L) [a]	TP (mg/L) [a]	TN (mg/L) [a]
Colored Lakes > 40 PCU	20	0.050	1.23	0.050-0.157	1.23-2.25
Clear Lakes, Alkaline ≤ 40 PCU [d] and > 50 mg/L CaCO3 [e]	20	0.030	1.00	0.030-0.087	1.00-1.81
Clear Lakes, Acidic ≤ 40 PCU [d] and ≤ 50 mg/L CaCO3 [e]	6	0.010	0.500	0.010-0.030	0.500-0.900

Rivers and Streams Criteria

Nutrient Watershed Region	Instream Protection Value Criteria	
	TN (mg/L) [a]	TP (mg/L) [a]
Panhandle [b]	0.824	0.043
Bone Valley [c]	1.798	0.739
Peninsula [d]	**1.205**	**0.107**
North Central [e]	1.479	0.359

Rule has equations in place for downstream effects of these criteria on Lakes (and Estuaries) could potentially lower these criteria

South Florida Canals: Criteria

	Chlorophyll *a* (µg/L)	Total Phosphorus (TP) (mg/L)	Total Nitrogen (TN) (mg/L)
Canals	4.0	0.042	1.6

Note: Canals in Everglades Protection Area will have a TP criterion of 0.010 mg/l